

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Paul Levy (reg 45748) on 9/24/2009.

The application has been amended as follows:

IN THE CLAIMS:

1. (Withdrawn) A peer-to-peer relay network, comprising:
a plurality of N peer systems;

wherein each peer system is connected to a number of other peer systems that is less than or equal to a connection limit, said connection limit is greater than or equal to 2, said connection limit is less than or equal to N-2, and each peer system is configured to relay data to peer systems connected to that peer system according to a set of one or more relay rules.

2. (Withdrawn) The peer-to-peer relay network of claim 1, wherein:

each peer system is configured so that when a peer system receives data from a sending peer system, the peer system sends the data to each of the peer systems connected to the peer system, but the peer system does not send the data back to the sending peer system and the peer

system does not send the data to any peer systems if the peer system has already sent the same data.

3. (Withdrawn) The peer-to-peer relay network of claim 2, wherein:
each peer system is configured to receive data included within a message, and each peer system is configured to retrieve identification information from a message to determine if a message including the same data has already been sent by the peer system.

4. (Withdrawn) The peer-to-peer relay network of claim 1, wherein:
each peer system is configured to relay data using messages, and a message includes data to be relayed, an origin identifier, a sequence value, and addressing information.

5. (Withdrawn) The peer-to-peer relay network of claim 1, wherein:
the data relayed by peer systems is update data for a network environment.

6. (Withdrawn) The peer-to-peer relay network of claim 1, wherein:
the data relayed by peer systems is update data for an online game.

7. (Withdrawn) The peer-to-peer relay network of claim 1, wherein:
at least one peer system is a network-enabled game console.

8. (Withdrawn) The peer-to-peer relay network of claim 1, further comprising:

a server connected to each of the peer systems.

9. (Withdrawn) The peer-to-peer relay network of claim 1, wherein:
each peer system has a respective value for said connection limit.

10. (Withdrawn) The peer-to-peer relay network of claim 1, wherein:
the value of said connection limit changes dynamically.

11. (Withdrawn) The peer-to-peer relay network of claim 1, wherein:
at least two peer systems are connected through the Internet.

12. (Withdrawn) A server for a peer-to-peer relay network, comprising:
means for establishing a peer-to-peer relay network;
means for adding a peer system to a peer-to-peer relay network;
means for maintaining a peer-to-peer relay network; and
means for tracking connections in a peer-to-peer relay network.

13. (Withdrawn) A peer system for a peer-to-peer relay network,
comprising:

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means for relaying data to any other peer systems connected to said peer system in a peer-to-peer relay network;

means for establishing a peer-to-peer relay network;

means for joining a peer-to-peer relay network;

means for connecting to another peer system in a peer-to-peer relay network;

means for maintaining a peer-to-peer relay network; and

means for disconnecting from another peer system connected to said peer system in a peer-to-peer relay network.

14. (Withdrawn) A method of relaying data in a peer-to-peer relay network, comprising:

receiving data at a relaying peer system from a sending peer system connected to said relaying peer system in a peer-to-peer relay network;

applying a set of one or more relay rules to select zero or more peer systems indicated by said set of one or more relay rules to which to relay said data; and

relaying said data to any peer systems selected by applying said set of one or more relay rules.

15. (Withdrawn) The method of claim 14, wherein:

said set of one or more relay rules indicate that the relaying peer system is not to relay to the sending peer system the same data received from the sending peer system.

16. (Withdrawn) The method of claim 14, wherein:

said set of one or more relay rules indicate that the relaying peer system is not to relay the same data to the same peer system twice.

17. (Withdrawn) The method of claim 14, wherein:

said set of one or more relay rules indicate that the relaying peer system is not to relay the data to the peer system indicated as the origin of the data according to information identifying the received data.

18. (Withdrawn) The method of claim 14, further comprising:

storing information identifying the received data.

19. (Withdrawn) The method of claim 14, further comprising:

comparing information identifying said received data with information stored by the relaying peer system to determine if said received data has been previously received by the relaying peer system.

20. (Withdrawn) The method of claim 14, wherein:

said received data is update data for a network environment.

21. (Withdrawn) The method of claim 14, wherein:

said received data is update data for an online game.

22. (Withdrawn) The method of claim 14, wherein:
at least one peer system is a network-enabled game console.

23. (Withdrawn) The method of claim 14, wherein:
at least two peer systems are connected through the Internet.

24. (Currently Amended) A method of adding a peer system to a peer-to-peer relay network, comprising:
opening a connection between a server and a joining peer system;
providing grid information to said joining peer system indicating one or more established peer-to-peer relay networks;
receiving a grid selection from said joining peer system indicating a selected peer-to-peer relay network, wherein said selected peer-to-peer relay network has one or more member peer systems;
providing network addresses of each of said one or more member peer systems to said joining peer system; and
receiving a connection update from said joining peer system indicating to which member peer systems said joining peer system is connected;
wherein each member peer system is connected to a number of other member peer systems that is less than or equal to a connection limit and each member peer system stores a set

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of one or more relay rules for relaying data to the other member peer systems connected to that member peer system, and

wherein the joining peer system sends a join request to the one or more member peer systems and receives either a positive or a negative response from the member peer system,

selecting a member peer system from which a negative join response has been received as a force connection peer system;

sending a force connection request to said force connection peer system, wherein said force connection request requests that said force connection peer system close one of the open connections of said force connection peer system,

wherein selecting said force connection peer system includes applying said set of one or more connection rules to the member peer systems that sent negative join responses.

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25. (Previously Presented) The method of claim 24, further comprising:

opening a connection between said server and an establishing peer system, wherein the establishing peer system is one of said member peer systems;

receiving a request to create said peer-to-peer relay network from said establishing peer system;

registering said peer-to-peer relay network in storage; and

sending a creation confirmation to said establishing peer system.

26. (Original) A method of joining a peer-to-peer relay network, comprising:

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sending a join message from a joining peer system to each of one or more member peer systems in a peer-to-peer relay network;

receiving a join response from at least one of said one or more member peer systems, wherein each join response is positive or negative, and a positive join response indicates the sending member peer system has an available connection and a negative join response indicates the sending member peer system does not have an available connection;

selecting one or more member peer systems up to a connection limit according to a set of one or more connection rules;

opening a connection with each selected member peer system;

wherein each member peer system is connected to a number of other member peer systems that is less than or equal to said connection limit and each member peer system stores a set of one or more relay rules for relaying data to the other member peer systems connected to that member peer system, and

wherein selecting one or more member peer systems includes:

selecting a member peer system from which a negative join response has been received as a force connection peer system;

sending a force connection request to said force connection peer system, wherein said force connection request requests that said force connection peer system close one of the open connections of said force connection peer system,

wherein selecting said force connection peer system includes applying said set of one or more connection rules to the member peer systems that sent negative join responses.

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27. (Original) The method of claim 26, wherein:

a member peer system has an available connection if the member peer system has a number of open connections to other member peer systems that is less than said connection limit.

28. (Original) The method of claim 26, wherein:

selecting one or more member peer systems includes storing a response time for each received join response.

29. (Original) The method of claim 26, wherein:

selecting one or more member peer systems includes:

selecting the member peer system from which the positive join response that is received first by said joining peer system, and selecting the member peer system from which the positive join response that is received last by said joining peer system within a time limit.

30. (Original) The method of claim 29, wherein:

selecting one or more member peer systems includes substantially randomly selecting additional member peer systems up to said connection limit from among the remaining unselected member peer systems from which positive joint response have been received.

31. (Original) The method of claim 29, wherein:

selecting one or more member peer systems includes selecting additional member peer systems up to said connection limit from among the remaining unselected member peer systems

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from which positive joint response have been received in the order in which the positive joint responses were received.

32. (Currently Amended) The method of claim 26, comprising
receiving a force connection confirmation from said force connection peer system.

33. (Canceled)

34. (Previously Presented) The method of claim 26, further comprising:
opening a connection between a server and said joining peer system;
receiving grid information at said joining peer system indicating one or more established
peer-to-peer relay networks;
sending a grid selection from said joining peer system to said server indicating a selected
peer-to-peer relay network, wherein said selected peer-to-peer relay network has one or more
member peer systems;
receiving network addresses of each of said one or more member peer systems at said
joining peer system; and
sending a connection update from said joining peer system indicating to which member
peer systems said joining peer system is connected.

35. (Currently Amended) A method of establishing a peer-to-peer relay
network, comprising:

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Deleted: wherein:
selecting one or more member peer
systems includes:
selecting a member peer system from
which a negative join response has been
received as a force connection peer
system;
sending a force connection request to said
force connection peer system, wherein
said force connection request requests
that said force connection peer system
close one of the open connections of said
force connection peer system; and

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opening a connection between a server and an establishing peer system, wherein the establishing peer system is one of said member peer systems;

sending a request to create said peer-to-peer relay network from said establishing peer system to said server;

receiving a creation confirmation at said establishing peer system from said server;

wherein said establishing peer system stores a connection limit defining a number of other peer systems up to which said establishing peer system is permitted to connect, and said establishing peer system stores a set of one or more relay rules for relaying data to other peer systems connected to said establishing peer system, and

wherein the joining peer system sends a join request to the one or more member peer systems and receives either a positive or a negative response from the member peer system,

selecting a member peer system from which a negative join response has been received as a force connection peer system;

sending a force connection request to said force connection peer system, wherein said force connection request requests that said force connection peer system close one of the open connections of said force connection peer system,

wherein selecting said force connection peer system includes applying said set of one or more connection rules to the member peer systems that sent negative join responses..

36. (Currently Amended) A method of connecting peer systems in a peer-to-peer relay network, comprising:

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sending a connection available message from a disconnected peer system to one or more member peer systems in a peer-to-peer relay network when said disconnected peer system has a number of open connections to member systems that is less than a connection limit;

receiving a connection available response from at least one of said one or more member peer systems, wherein each connection available response is positive or negative, and a positive join response indicates the sending member peer system has an available connection and a negative join response indicates the sending member peer system does not have an available connection;

selecting a member peer system according to a set of one or more connection rules;

opening a connection with said selected member peer system;

wherein each member peer system is connected to a number of other member peer systems that is less than or equal to said connection limit and each member peer system stores a set of one or more relay rules for relaying data to the other member peer systems connected to that member peer system, and

wherein selecting one or more member peer systems includes:

selecting a member peer system from which a negative join response has been received as a force connection peer system;

sending a force connection request to said force connection peer system, wherein said force connection request requests that said force connection peer system close one of the open connections of said force connection peer system,

wherein selecting said force connection peer system includes applying said set of one or more connection rules to the member peer systems that sent negative join responses.

37. (Original) The method of claim 36, further comprising:

closing a connection by said disconnected peer system.

38. (Original) The method of claim 36, wherein:

a member peer system has an available connection if the member peer system has a number of open connections to other member peer systems that is less than said connection limit.

39. (Original) The method of claim 36, wherein:

selecting a member peer system includes storing a response time for each received connection available response.

40. (Original) The method of claim 36, wherein:

selecting a member peer systems includes selecting the member peer system from which the positive connection available response that is received first by said disconnected peer system.

41. (Original) The method of claim 36, wherein:

selecting a member peer systems includes not selecting a member peer system from which said disconnected peer system has disconnected within a disconnection time period.

42. (Currently Amended) The method of claim 36, comprising

receiving a force connection confirmation from said force connection peer system.

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Deleted: wherein:
selecting a member peer systems includes:
selecting a member peer system from which a negative connection available response has been received as a force connection peer system;
sending a force connection request to said force connection peer system, wherein said force connection request requests that said force connection peer system close one of the open connections of said force connection peer system; and

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43. (Canceled)

44. (Original) The method of claim 36, further comprising:

 sending an update to a server indicating a connection has been opened between said disconnected peer system and said selected member peer system.

45. (Withdrawn) A method of maintaining a peer-to-peer relay network,
comprising:

 sending a maintenance message from a peer system to each of one or more connected peer systems connected to said peer system in a peer-to-peer relay network;

 evaluating any responses received from said one or more connected peer systems; and

 closing the connection between said peer system and a connected peer system if the response from that connected peer system is not acceptable;

 wherein each peer system is connected to a number of other peer systems that is less than or equal to a connection limit and each peer system stores a set of one or more relay rules for relaying data to the other peer systems connected to that peer system.

46. (Withdrawn) The method of claim 45, wherein:

 said maintenance message is a ping message.

47. (Withdrawn) The method of claim 45, wherein:

a response from a connected peer system is not acceptable if the response is not received by said peer system within a time limit.

48. (Withdrawn) The method of claim 45, wherein:
a response is considered not acceptable if the response is not received.

49. (Withdrawn) The method of claim 45, wherein:
a response from a connected peer system is considered not acceptable if said peer system has not received a response from that connected peer system within a time limit multiple times.

50. (Withdrawn) The method of claim 45, further comprising:
sending a connection status request to a server for a connection between said peer system and a connected peer system if the response from that connected peer system is not acceptable.

51. (Withdrawn) The method of claim 45, further comprising:
sending an update to a server indicating a connection has been closed for each connection closed by said peer system.

52. (Withdrawn) A computer program, stored on a tangible storage medium,
for use in a server for peer-to-peer relay network, the program comprising executable instructions that cause a computer to:
establish a peer-to-peer relay network;

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add a peer system to a peer-to-peer relay network;
maintain a peer-to-peer relay network; and
track connections in a peer-to-peer relay network.

53. (Canceled)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAMY M. OSMAN whose telephone number is (571)272-4008.

The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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September 24, 2009

/Ramy M Osman/
Primary Examiner, Art Unit 2457